

**REMARKS**

Applicants have carefully reviewed the Office Action dated June 5, 2006. Applicants have amended Claims 1, 17 and 37 to more clearly point out the present inventive concept. Reconsideration and favorable action is respectfully requested.

Claims 1, 8-17, 22-30, and 37-39 are pending in this Application.

Claims 1, 17 and 37 have been amended.

**Regarding Section 102 Rejection**

Claims 1, 13, 15-17, 27, 29, 30, 37, and 38 were rejected under 35 U.S.C. §102(b) for being anticipated by U.S. Patent Number 5,857,661 (*Amada*).

As instructed by the Examiner and referring to *Amada*, primarily Figure 8, *Amada* teaches a flexible bellows 57 formed within a solid housing 51. The housing 51 is made up of three parts – 51a the lower block, 51b a cylindrical block and 51c an upper block. The housing 51 is manufactured of either a synthetic resin material such as PFA or of a metal such as stainless steel. See Column 12, lines 31-39. Applicant respectfully submits that the housing 51 of *Amada* is not flexible. Furthermore, the housing 51 is not planar, but instead comprises a three-dimensional shape having a cylindrical portion. The drive bellows 57 of *Amada* is contained within the *Amada* housing 51, but cannot be co-planar with the *Amada* housing because it is contained within the *Amada* three dimensional structure, which is not planar. Furthermore, there is nothing in *Amada* which teaches that the *Amada* bellows is intended to be able to extend a distance greater than a maximum lateral dimension of its structure. Finally, Applicant would also like to point out that a bellows, like the one in *Amada*, when compressed cannot be co-planar with a planar surface or element because a bellows, by definition, requires an overlapping of multiple folded layers of material so that the bellows may operate in an accordion like fashion.

Claim 1, as amended, recites “a flexible planar substrate having a topside” and “a flexible and extensible structure formed within and originating as part of said flexible planar substrate.” Further amendment to Claim 1 clarifies, rather than limits the claim by stating that “said structure being co-planar with said substrate.” Applicant respectfully submits that since *Amada* does not teach, among other things discussed, “a flexible planar substrate” or a “structure formed within and

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originating as part of said flexible planar substrate," then *Amada* cannot teach, allude to or anticipate Claim 1. As such, Applicant respectfully requests that the Section 102 rejection be withdrawn and submits that Claim 1 is ready for allowance.

Claim 13, being dependent upon Claim 1, is not anticipated, for at least the same reasons as discussed above with respect to Claim 1. Furthermore, the bellows 57 of *Amada* does not include a spiral, curve, twist, turn, curl, loop, u-turn, or zig-zag. As such, Applicant respectfully requests that the rejection of Claim 13 be withdrawn.

Regarding Claim 15, this claim is directly dependent upon Claim 1 and is therefore not anticipated for at least the same reasons as discussed above with respect to Claim 1. Furthermore, Claim 15 recites that the "structure comprises a boss for receiving a force to extend said structure out of said plane." Applicant points out that element 55 of *Amada* cannot be a boss that receives a force to extend said structure out of said plane because element 55 of *Amada* is a suck-back diaphragm valve body which allows a control medium (such as a fluid to be pushed out of the storage chamber 56 by the bellows 57). The bellows 57 expands and contracts based on compressed air provided through a supply/exhaust port 58. Applicant therefore submits that *Amada* does not teach or anticipate "a boss for receiving a force to extend said structure out of said plane." The element 55 of *Amada* does not receive a force that extends the bellows 57 into or out of any plane. As such, Applicant respectfully requests that the Section 102 rejection be withdrawn and submits that Claim 15 is ready for allowance.

Regarding Claim 16, this claim is dependent upon Claim 1 and is therefore not anticipated for at least the same reasons as discussed above with respect to Claim 1. Furthermore, Claim 16 recites that the flexible circuit further comprises "at least a first insulated pathway and a second insulated pathway." Applicant respectfully submits that Figure 14 of *Amada* does not teach both the first and second insulated pathways. Applicant points out that element 81, as cited by the Examiner, is not a pathway, but rather a bellows which expands and contracts to push the contents M in and out of the cylindrical area that the bellows expands and contracts within. See Column 17, Lines 46 through Column 18, Line 10. Applicant also points out that Element 79 in Figure 14 of *Amada* is not a second insulated pathway, but is the other side of the storage chamber that the substance M is contained in. As such, Applicant respectfully submits that *Amada* does not anticipate Claim 16 because a first and a second insulated pathway are not taught. Applicant respectfully requests that the Section 102 rejection be withdrawn and submits that Claim 16 is ready for allowance.

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Claim 17, as amended, recites "a flexible substrate having a plane" along with "a flexible and extensible structure formed within and as part of said substrate" as discussed above. *Amada* does not teach or anticipate such a flexible substrate or such a flexible and extensible structure that is "formed within and as part of said substrate." Applicant has deleted the words "and co-planar with said substrate" in order to broaden rather than narrow this claim and not because it was necessary to overcome the cited art. As such, since *Amada* does not teach or anticipate a flexible substrate having a plane or the extensible structure as recited, Applicant respectfully submits that Claim 17 is not anticipated by *Amada* and requests that the Section 102 rejection be withdrawn.

Claim 27 is dependent upon Claim 17 and is therefore not anticipated for at least the same reasons as discussed above with respect to Claim 17. Furthermore, Claim 27 is not anticipated for the reasons as discussed regarding Claim 12 above. As such, Applicant respectfully requests that the Section 102 rejection be withdrawn.

With respect to Claim 29, this claim is dependent upon Claim 17 and was therefore not anticipated for at least the same reasons as discussed above with respect to Claim 17. Furthermore, Claim 29 is not anticipated for reasons similar to the discussion above regarding Claim 15. As such, Applicant respectfully requests that the Section 102 rejection be withdrawn.

Claim 30 is also dependent on Claim 17 and is therefore not anticipated for at least the same reasons as discussed above with respect to Claim 17. Furthermore, Claim 30 recites that the flexible circuit further comprises a "second insulated pathway on said structure." Such a second insulated pathway is not taught or provided by *Amada*, as discussed above, with respect to Claim 16. As such, Applicant respectfully requests that the Section 102 rejection be withdrawn and submits that Claim 30 is ready for allowance.

Claim 37, as amended, recites "a flexible planar substrate." Claim 37 further recites that there is a "flexible and extensible structure formed within and as part of said substrate." Since *Amada* does not teach or anticipate a flexible planar substrate that has a flexible and extensible structure formed within and as part of the substrate, then *Amada* cannot anticipate Claim 37. As such, Applicant respectfully requests that the Section 102 rejection be withdrawn.

Claim 38 is dependent upon Claim 37 and is therefore not anticipated for at least the same

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reasons as discussed above with respect to Claim 37. Furthermore, since *Amada* does not teach the structure of independent Claim 37, Applicant further must submit that *Amada* cannot teach or anticipate "an insulated pathway formed on said structure." As such, Applicant respectfully requests that the Section 102 rejection be withdrawn and submits that these claims are ready for allowance.

Regarding the Section 103 Rejection

Claims 8-12, 22-26, and 39 were rejected under 35 U.S.C. § 103(a) as being rendered obvious by *Amada* in view of *Santagiuliana* (U.S. Patent Number 5,924,603).

Applicant agrees with the Examiner that *Amada* does not describe the structure as a spiral. Applicant further points out that although *Santagiuliana* discusses a bellows that has a "lateral surface in the shape of a spiral, so as to obtain the bellows by injection molding since the spiral profile permits the removal of the snapping tool," the bellows of *Santagiuliana* does not originate "as part of the flexible planar substrate" nor would the spiral lateral surface compress or extend to be "co-planar with said substrate." As such, Applicant respectfully submits that the combination of *Amada* in view of *Santagiuliana* does not teach, allude to or render obvious the Claims 8-12, 22-26 and 39 because *Santagiuliana* does not overcome the deficiencies of *Amada*. As such, Applicant respectfully requests that the Section 103 rejection be withdrawn and submits that these claims are ready for allowance.

Claims 14 and 28 were rejected under 35 U.S.C. § 103(a) for being rendered obvious by *Amada* in view of *Lieb* (U.S. Patent Number 5,651,529).

Applicant respectfully submits that the structure of *Amada* which the Examiner is presenting, is a bellows and could not be defined by dashed perforations. Furthermore, combining the *Amada* bellows with the dashed perforations of *Lieb* do not combine to provide a functional or operational device, but more importantly, do not combine to teach, allude to, or render obvious each element of pending Claims 14 and 28. As such, Applicant respectfully requests that the Section 103 rejection be withdrawn and submits that all the claims are ready for allowance.

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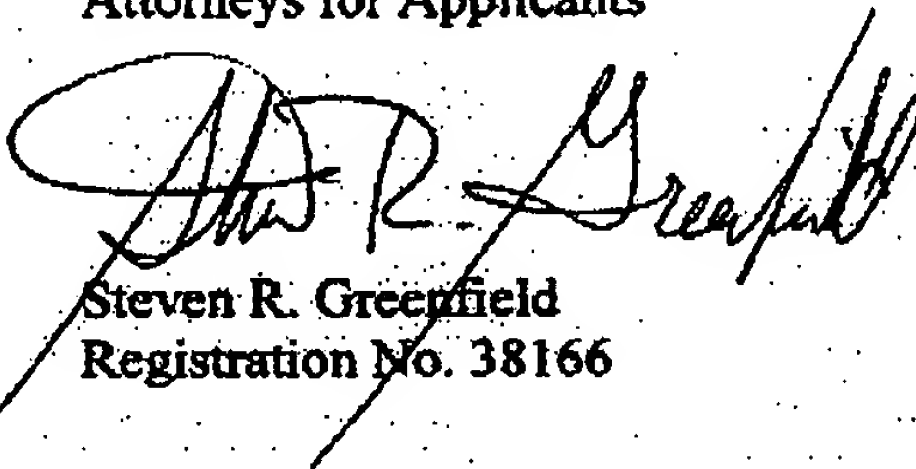
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Applicants have now made an earnest attempt in order to place this case in condition for allowance. For the reasons stated above, Applicants respectfully request full allowance of the claims as amended. Please charge any additional fees or deficiencies in fees or credit any overpayment to Deposit Account No. 20-0780/AGIL-27,343 of HOWISON & ARNOTT, L.L.P.

Respectfully submitted,  
HOWISON & ARNOTT, L.L.P.  
Attorneys for Applicants



Steven R. Greenfield  
Registration No. 38166

SRG/ljo

P.O. Box 741715  
Dallas, Texas 75374-1715  
Tel: 972-479-0462  
Fax: 972-479-0464  
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